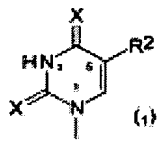
This listing of claims will replace all prior versions, and listings, of claims in the application.

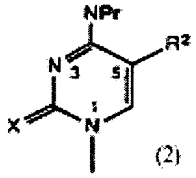
**Listing of Claims:**

Claims 1-127 (Canceled).

128 (Withdrawn). An oligomer comprising at least two nucleomonomers and pharmaceutically acceptable salts thereof wherein at least one of said nucleomonomers comprises a base of formula (1) or (2):



(1)



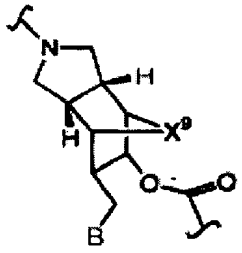
(2)

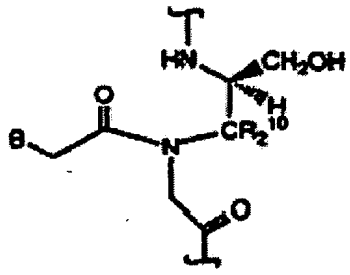
wherein each X is independently O or S;

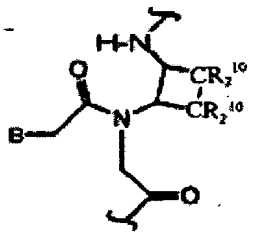
$R^2$ is a group comprising at least one pi bond connected to the carbon atom attached to the base; and

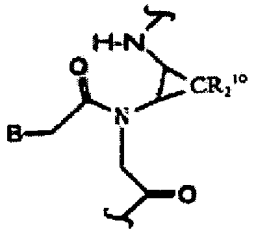
Pr is $(H)_2$ or a protecting group,

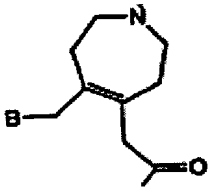
wherein said oligomer includes at least one unit having one of the following formulas:

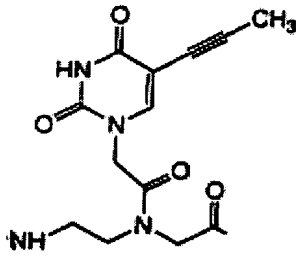


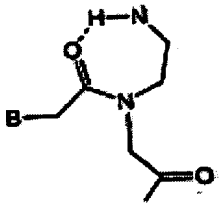



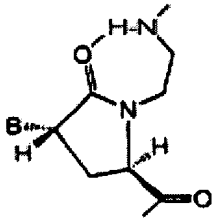


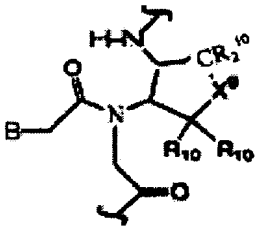


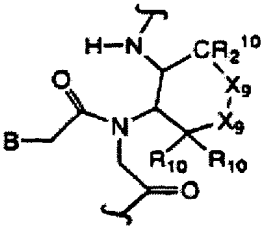


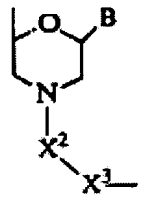













wherein

B is a base, provided that at least one B is a base of formula (1) or (2);

$X^9$ is S, O, SO, $SO_2$, $CH_2$, CHF, $CF_2$, or $NR_{10}$, provided that adjacent $X^9$ are not both O;

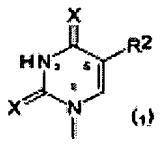
$R^{10}$ is, independently, H, F, OH, $OCH_3$, $CH_3$, or CH-lower alkyl;

$X^2$ is CO, CS or $SO_2$; and

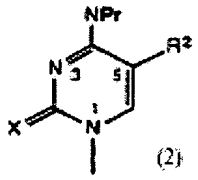
$X^3$ is O, S, $CH_2$, $CF_2$, CHF, NH, $NCH_3$.

Claims 129-130 (Canceled).

131. (Withdrawn) An oligomer comprising at least one base of formula (1) or (2):



(1)



(2)

wherein each X is independently O or S;

$R^2$ is a group comprising at least one pi bond connected to the carbon atom attached to the base;

Pr is $(H)_2$ or a protecting group; and

at least one conjugate linked thereto.

132. (Withdrawn) The oligomer of claim 131 wherein said conjugate is a radioactive conjugate, a fluorescent conjugate, or an enzyme conjugate.

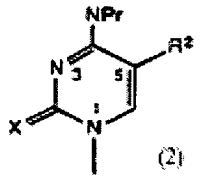
133. (Withdrawn) The oligomer of claim 131 wherein said conjugate is a fluorescent conjugate.

134. (Withdrawn) The oligomer of claim 131 wherein said conjugate is selected from the group consisting of fluorescien, resorufin, rhodamine, BODIPY, texas red, alkaline phosphatase, horseradish peroxidase, biotin, antibodies, antibody fragments, transferrin and the HIV Tat protein.

Claims 135 - 138 (Canceled).

139. (New) A method of detecting the presence, absence or amount of a particular single-stranded DNA or RNA or a particular target duplex in a sample comprising:

selecting an oligomer having at least one base of formula (2):



(2)

wherein each X is independently O or S;

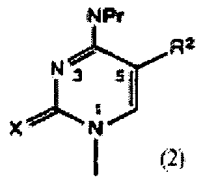
$R^2$ is a group comprising at least one pi bond connected to the carbon atom attached to the base; and

Pr is $(H)_2$ or a protecting group; and

using said oligomer to detect said DNA, RNA or target duplex.

140. (New) The method of 139 wherein said oligomer is used for quantitating the amount of said DNA, RNA or target duplex in said sample.

141. (New) A method of performing a polymerase chain reaction (PCR) to amplify a target sequence comprising including in a PCR assay mixture an oligomer having at least one base of formula (2):




(2)

wherein each X is independently O or S;

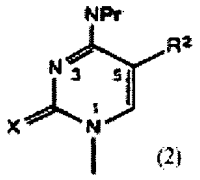
$R^2$ is a group comprising at least one pi bond connected to the carbon atom attached to the base; and

Pr is $(H)_2$ or a protecting group; and

effecting a polymerase chain reaction to amplify said target sequence.

142. (New) The method of claim 141 further including a Taq polymerase in said PCR assay mixture.

143. (New) A method of performing a nucleic acid amplification protocol to amplify a target nucleic acid comprising including in an assay mixture an oligomer having at least one base of formula (2):




(2)

wherein each X is independently O or S;

$R^2$ is a group comprising at least one pi bond connected to the carbon atom attached to the base; and

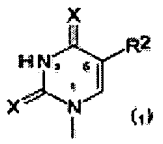
Pr is $(H)_2$ or a protecting group; and

effecting a protocol to amplify said target nucleic acid.

144. (New) A method of claim 143 wherein said protocol includes hybridization of said oligomer to said target nucleic acid.

145. (New) A method of detecting the presence, absence or amount of a particular single-stranded DNA or RNA or a particular target duplex in a sample comprising:

selecting an oligomer having at least one base of formula (1):




(1)

wherein each X is independently O or S;

$R^2$ is cyano, $C_{2-12}$ 1-alkenyl, 1-alkynyl, a $C_{2-12}$ heteroaromatic group containing 5-6 ring atoms in which one to three of the ring atoms is N, S or O; phenylethynyl, 2-, 3- and 4-pyridine-ethynyl, 2-, 4-, and 5-pyrimidine-ethynyl, triazine-ethynyl, 2-, 4-, and 5-pyrimidinyl, 2-, 4-, and 5-oxazolyl-ethynyl, 2-, 4-, and 5-thiazolyl-ethynyl, 1-methyl-2-imidazolyl, 2- and 4- imidazolyl, 2-, 4- and 5-oxazolyl, 2-, 4-, and 5-imidazolyl-ethynyl, 2-, 3- and 4-pyridinyl, 2- and 3-thienyl-ethynyl, 2- and 3-furanyl-ethynyl, 2- and 3-pyrrolyl-ethynyl, 2- and 3-thienyl, 2-, 4-, and 5-oxazolyl, 2- and 3-furanyl, 2- and 3-pyrrolyl, propenyl, vinyl, bromovinyl, -C≡C-Z where Z is H, $C_{1-10}$ alkyl, $C_{1-10}$ haloalkyl (with 1-6 halogen atoms), or $C_{1-10}$ heteroalkyl (with 1-3 heteroatoms); 3-buten-1-ynyl, 3-methyl-1-butynyl, 3,3-dimethyl-1-butynyl, 1,3-pentadiynyl, 1-butynyl, ethynyl; and

Pr is $(H)_2$ or a protecting group; and

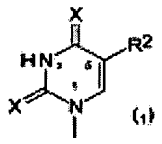
using said oligomer to detect said DNA, RNA or target duplex.

146. (New) The method of 145 wherein said oligomer is used for quantitating the amount of said DNA, RNA or target duplex in said sample.

147 (New). The method of claim 145 wherein $R^2$ is $C_{2-8}$ 1-alkenyl.

148 (New). The method of claim 145 wherein $R^2$ is $C_{2-8}$ heteroaromatic.

149. (New) A method of performing a polymerase chain reaction (PCR) to amplify a target sequence comprising including in a PCR assay mixture an oligomer having at least one base of formula (1):



wherein each X is independently O or S;

$R^2$ is cyano, $C_{2-12}$ 1-alkenyl, 1-alkynyl, a $C_{2-12}$ heteroaromatic group containing 5-6 ring atoms in which one to three of the ring atoms is N, S or O; phenylethynyl, 2-, 3- and 4-pyridine-ethynyl, 2-, 4-, and 5-pyrimidine-ethynyl, triazine-ethynyl, 2-, 4-, and 5-pyrimidinyl, 2-, 4-, and 5-oxazolyl-ethynyl, 2-, 4-, and 5-thiazolyl-ethynyl, 1-methyl-2-imidazolyl, 2- and 4- imidazolyl, 2-, 4- and 5-oxazolyl, 2-, 4-, and 5-imidazolyl-ethynyl, 2-, 3- and 4-pyridinyl, 2- and 3-thienyl-ethynyl, 2- and 3-furanyl-ethynyl, 2- and 3-pyrrolyl-ethynyl, 2- and 3-thienyl, 2-, 4-, and 5-oxazolyl, 2- and 3-furanyl, 2- and 3-pyrrolyl, propenyl, vinyl, bromovinyl, -C≡C-Z where Z is H, $C_{1-10}$ alkyl, $C_{1-10}$ haloalkyl (with 1-6 halogen atoms), or $C_{1-10}$ heteroalkyl (with 1-3 heteroatoms); 3-buten-1-ynyl, 3-methyl-1-butynyl, 3,3-dimethyl-1-butynyl, 1,3-pentadiynyl, 1-butynyl, ethynyl; and

Pr is $(H)_2$ or a protecting group; and

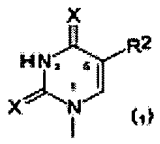
effecting a polymerase chain reaction to amplify said target sequence.

150. (New) The method of claim 149 further including a Taq polymerase in said PCR assay mixture.

151 (New). The method of claim 149 wherein $R^2$ is $C_{2-8}$ 1-alkenyl.

152 (New). The method of claim 149 wherein $R^2$ is $C_{2-8}$ heteroaromatic.

153. (New) A method of performing a nucleic acid amplification protocol to amplify a target nucleic acid comprising including in an assay mixture an oligomer having at least one base of formula (1):




wherein each X is independently O or S;

$R^2$ is cyano, $C_{2-12}$ 1-alkenyl, 1-alkynyl, a $C_{2-12}$ heteroaromatic group containing 5-6 ring atoms in which one to three of the ring atoms is N, S or O; phenylethynyl, 2-, 3- and 4-pyridine-ethynyl, 2-, 4-, and 5-pyrimidine-ethynyl, triazine-ethynyl, 2-, 4-, and 5-pyrimidinyl, 2-, 4-, and 5-oxazolyl-ethynyl, 2-, 4-, and 5-thiazolyl-ethynyl, 1-methyl-2-imidazolyl, 2- and 4- imidazolyl, 2-, 4- and 5-oxazolyl, 2-, 4-, and 5-imidazolyl-ethynyl, 2-, 3- and 4-pyridinyl, 2- and 3-thienyl-ethynyl, 2- and

3-furanyl-ethynyl, 2- and 3-pyrrolyl-ethynyl, 2- and 3-thienyl, 2-, 4-, and 5-oxazolyl, 2- and 3-furanyl, 2- and 3-pyrrolyl, propenyl, vinyl, bromovinyl, -C≡C-Z where Z is H, $C_{1-10}$ alkyl, $C_{1-10}$ haloalkyl (with 1-6 halogen atoms), or $C_{1-10}$ heteroalkyl (with 1-3 heteroatoms); 3-buten-1-ynyl, 3-methyl-1-butynyl, 3,3-dimethyl-1-butynyl, 1,3-pentadiynyl, 1-butynyl, ethynyl; and

Pr is $(H)_2$ or a protecting group; and

effecting a protocol to amplify said target nucleic acid.

154. (New) A method of claim 153 wherein said protocol includes hybridization of said oligomer to said target nucleic acid.

155 (New). The method of claim 153 wherein $R^2$ is $C_{2-8}$ 1-alkenyl.

156 (New). The method of claim 153 wherein $R^2$ is $C_{2-8}$ heteroaromatic.